

material (in fruit) compares well in all respects with typical *L. minimiflorus*, and *White & Gilly 5367* shows the very short, densely sericeous standard which sets off this species from its allies in the Series *Pubiflori*.

LONGHOCARPUS RUGOSUS Benth.

This is the most plentiful of the Middle American *Lonchocarpi*. It is also the most polymorphic of all the species in the genus, not only in shape, size and venation of the leaflets, in vesture and in stipule characteristics but also strikingly so in its pods. Consequently its variations include much greater extremes than those that have been singled out as the bases for most of the recently proposed segregates. On the basis of a single character most of the specimens may be readily assorted into two groups, but the substitution of a second, equally well-marked, characteristic results in a very different composition of the two groups. Furthermore, as soon as a correlation is attempted between two or more of the differentiating features (with the single exception of var. *hintoni*), the number of recalcitrant intermediates becomes disconcerting, as has been pointed out by Standley and Steyermark in their discussion of *L. apricus* (*Fieldiana*, Botany, 24(5): 284. 1946).

Among the most outstanding forms of the species are those characterized by divergence in type of pubescence. A copious, shaggy type of villosity found in combination with very large (9×2.5 cm), few-nerved leaflets and large, widely divaricate, persistent stipules in *Steyermark 45744* from Guatemala is so striking that this plant at first appears to have little in common with *L. rugosus*. This villosity

reappears in a similarly pronounced degree in *Schipp 503* from British Honduras, but is here associated with small, ascending caducous stipules and moderately nerved leaflets of average size (4×2 cm). Between this overdeveloped villosity and the prevalent form with short, only moderately dense villosity, an extensive series of transitional stages is found in innumerable combinations with other characters. In other collections the vesture fluctuates toward either of two additional extremes; a dense tomentum in such individual plants as *Hinton 6325* from Mexico and *Steyermark 51554* from Guatamala, or a comparatively sparse strigosity represented by *Standley 19254* from El Salvador.

A similarly extensive range of fluctuation is evident from a comparison of the legumes, from the standpoint of their shape, size, texture, type of pubescence or number of seeds; of the leaflets, from the standpoint of number, size, texture, venation, or type of apex or base; or of the characteristics of the inflorescence. And in each case a similar lack of consistency, a refusal to submit to the taxonomist's penchant for pigeon-holing, will be noted.

Extensive field acquaintance with *Lonchocarpus rugosus* would doubtless be helpful in suggesting explanations for its seemingly unpredictable behavior. From herbarium evidence alone conjectures are risky, but it seems not altogether improbable that frequently sufficient allowance has not been made for the influence of environmental factors upon the species, since it is not only one of the most widely distributed of the *Lonchocarpi* but is to be found in a greater diversity of habitats than the majority of its congeners.

BOTANY.—*New species of Salix from Szechwan, China.*¹ WEN-PEI FANG, National Szechwan University, Chengtu, Szechwan. (Communicated by EGBERT H. WALKER.)

The four new species of willows described herein were found among the numerous collections that have been made in Szechwan Province, China, in recent years. The types are deposited in the herbarium of the National Szechwan University at Chengtu. Duplicates are being distributed to various herbaria in China and the United States.

¹ Received April 22, 1948.

1. *Salix triandroides* Fang, sp. nov.

Frutex parvus, 2 m altus, cortico laevi, flavescenti- vel fusco-cinereo. Ramuli erecti, cylindrici, hiemales dense nigrescenti- vel fusco-tomentosi, vernaes glabrescentes. Gemmae ovoideae, 8 mm longae, perulis late ovatis extrinsecus dense cinereo-tomentosis. Folia alternata, chartacea, glabra, lanceolata vel oblanceolata, rarius oblongo-ovata vel oblongo-ovata, 3-5 cm, rarius ad 12 cm longa, 1-1.5

cm, rarius ad 2.2 cm lata, apice caudato-acuminata vel breviter acuminata, basi late cuneata, margine glanduloso-serrulata, supra atroviridia, subtus pallidiora; costa media supra obscura subtus prominens; nervi laterales utrinsecus 5–20, obsoleti; petioli cylindrici, 8 mm longi, glabri, supra canaliculati, subtus rotundati. Flores coetanei, amenta mascula 2–2.5 cm, rarius ad 3 cm longa, flava vel viridiflava, densiflora, rhachi albo-pilosa et albo-pubescente; pedunculi 5–8 mm longi, pubescentes, foliis 2 vel 3 suffulti; bractee flavae vel fusco-flavae, obovatae, 2 mm longae, utrinque pilosae. Stamina 3, filamentis gracilibus 3 mm longis basi villosis, antheris flavis ovalibus, glandula ventrali simplici flava oblongo-conicali, glandula dorsali simplici flava oblonga. Amenta feminea alterna, 2.5–3 cm longa, viridia, densiflora, rhachi cinereo-pubescenti vel pilosa; pedunculi 1–1.5 cm longi, foliis obovatis 2 vel 3 suffulti; bractee flavescenti-virides, oblongae, 2–3 mm longae, extrinsecus albo-pilosae, intrinsecus glabrae; ovaria conico-ovoidea, 5 mm longa, viridia, glabra; pedicelli 1–1.5 mm longi, glabri; stylus brevior; stigmata divergentia; glandula ventralis flava, oblongo-ovoidea. Amenta fructifera 3–3.5 cm longa, capsulis conico-ovoideis 5 mm longis flavescenti-viridibus; bractea extus albo-pilosa; pedicelli 1–1.5 mm, longi, tenues, glabri.

EAST OF CHENGTU: Tsing-chu-ssu, *W. P. Fang* 19427 ♀, 19598 ♂, *K. Y. Ning* 7660 ♂; Kuan-ying-chiao, *W. P. Fang* 19411 ♂; Wu-kuai-chiao, *K. Y. Ning* 7910 ♀, 7918 ♀. SOUTHEAST OF CHENGTU: Near Wang-kiang-lau, *K. Y. Ning* 7953 ♂, 7954 ♂, 7955 ♂; campus of National Szechwan University, *W. P. Fang* 19604 ♀, 19605 ♀, 19605A ♂, 19606 ♂, 19608 ♂, 19611 ♀, 19617 ♀; T'ou-wa-you, *W. K. Hu* 7694 ♀, 7695 ♀, *W. P. Fang* 19376 ♀, 19416 ♀, 19415 ♂, 19417 ♂, 19418 ♂, *K. Y. Ning* 7917 ♂, 7938 ♂, 7939 ♂; Chung-shu-chiao *W. K. Hu* 7633 ♂, 7639 ♂; Kao-pan-chiao, *W. P. Fang* 19370 ♂, 19379 ♂, 19383 ♀, 19385 (type) ♀, 19435 ♀, 19516 ♀, 19637 ♀. SOUTH OF NEW VILLAGE OF CHENGTU: *W. P. Fang* 19322 ♀, 19393 ♂, 19440 ♀. WEST OF CHENGTU: Chia-tien-tzu, *K. Y. Ning* 7962 ♂. NORTHWEST OF CHENGTU: Tu-chu-miao, *K. Y. Ning* 7947 ♂, 7848 ♂.

This new species is nearly always found by a stream, occasionally by the roadside. All the cited specimens were collected in the month of

March, 1945–1947, except *K. Y. Ning* 7917 and 7933, staminate specimens collected on February 16, 1946. Fruiting specimens may be found late in March.

This species is quite distinct from all the known species. It may be near *Salix triandra* L., from which it differs in its shrubby habit with blackish-gray, densely tomentose branchlets in winter, in its short staminate catkins with oblanceolate bracts which are pilose on the outer surface, in its pistillate catkins with glabrous ovaries and oblanceolate bracts which are longer than the pedicels, and in the lanceolate leaves which are pale green but not glaucous below. *Salix triandra* L. is widely distributed in Europe, northern Asia, and northern Africa, but in China it occurs only along the eastern coast from Manchuria to Kiangsu. This new species is fairly common along the streams in the vicinity of Chengtu. The young leaves of the flowering branchlets are ovate or obovate, but adult ones on the leafy branches are usually lanceolate, and those from the stout branches are exceptionally large in size.

2. *Salix neowilsonii* Fang, sp. nov.

Arbor 6–15 m alta, cortice fusco-cinereo sulcato. Ramuli erecti, teretes, graciles, glabri; hornotini purpureo-virides, annotini fusco-virides vel pallido-virides. Gemmae conoideae, 6 mm longae, perulis late ovatis fuscis pubescentibus; bractee 2, obovatae, membranaceae, fusco-virides. Folia alterna, chartacea, glabra, lanceolata, 6–14 cm longa, 2.5–4 cm lata, apice acuminata vel abrupte acuminata, basi cuneata, margine adpresse glanduloso-serrulata, supra atroviridia, subtus pallidiora, costa media supra distincta, subtus prominente, nervis lateralibus utrinsecus 25–30 obsoletis; petioli graciles, 1–2 cm longi, supra canaliculati, primum pubescentes et purpurescentes, adulti glabri et virides, tandem rubri, apice 2- rarius 4-glandulosi; stipulae deciduae. Flores coetanei; amenta mascula viridi-flava, cylindrica, 3.5–4.5 cm, rarius ad 6.5 cm longa, laxiflora; rhachis albo-pubescentis; pedunculi 7–10 mm longi, albo-pubescentes, foliis 2–6 suffulti; bractee oblongae, 2 mm longae, flavescenti-virides, extrinsecus sparse pubescentes, intrinsecus pubescentes et margine ciliatae. Stamina 3–5, inaequalia, plerumque 2 longiora circa 4 mm longa, 3 breviora circa 2 mm longa; filamenta gracilia, sursum glabra, basi villosa; antherae subovoideae, flavae, glandulis ventralibus et

dorsalibus flavis pseudodiscum formantibus. Amenta feminea et fructus ignoti.

EAST OF CHENGTU: Near Tsing-chu-ssu, W. P. Fang 19403 (type). SOUTHEAST OF CHENGTU: Wang-kiang-lau, near Lei-shun-miao, K. Y. Ning 7956, W. P. Fang 19616, 19628, 19378, 19405; campus of National Szechwan University, W. P. Fang 19414, 19610; T'ou-wa-you, K. Y. Ning 7931, 7932, 7934, W. P. Fang 19414; near the Arsenal, K. Y. Ning 7937, W. P. Fang 19433, 19434; Kao-pan-chiao, K. Y. Ning 7948. SOUTH OF CHENGTU: Outside the new south gate, W. P. Fang 19390; Hua-hsi-pa, W. P. Fang 19390A. WEST OF CHENGTU: Tsing-young-kon, K. Y. Ning 7981; Tao-chu-miao, K. Y. Ning 7949; Cha-tien-tzu, K. Y. Ning 7964; King-niu-pa K. Y. Ning 7972, 7976. NORTHWEST OF CHENGTU: Chiang-chun-pao, K. Y. Ning 7981; Chung-cheng Memorial Park of Chengtu, W. P. Fang 19634 (cultivated). SOUTHWEST OF CHENGTU: Pei huan-tan, W. P. Fang, 12041, 13272.

This new species is closely related to *Salix wilsonii* Seemen but is separated easily from that species by the branches and leaves which are glabrous even during the young stage, by the petioles which are provided with 2 or 4 glands near the apex, and by the oblong bracts which are pubescent on the inner surface. Although we have not yet found the pistillate flowers, the material on hand is sufficient to indicate an undescribed species. The tree is usually cultivated as an avenue-tree in the vicinity of Chengtu.

3. *Salix hsinsuaniana* Fang, sp. nov.

Frutex 1 vel 2 m altus, cortice nigrescenti-cinereo laevi. Ramuli graciles, teretes; hornotini pubescentes; annotini glabrescentes, purpureo-virides. Gemmae conicae, fusco-purpureae, glabrescentes. Folia decidua, alterna, chartacea, elliptica vel elliptico-oblonga vel elliptico-oblongata, 2-2.5 cm longa, 8-10 mm lata, apice obtusa vel subrotundata, basi obtusa vel late cuneata, margine integra, supra atroviridia, glabra, costa media puberula excepta, subtus viridia, juvenilia sparse tomentosa vel villosa, maturitate glabrescentia; costa media supra depressa subtus conspicua; nervi laterales utrinsecus 8-10 supra obsoleti, subtus conspicui; petioli 2-3 mm longi, juveniles pubescentes, maturitate glabri. Flores serotini; amenta masculina fusco-flava, densiflora,

cylindrica, 2-2.5 cm longa, 7 mm crassa, rhachi albo-villosa; pedunculi 1-1.2 cm longi, pubescentes, foliis normalibus 3-4 suffulti. Stamina 2 plerumque 3 mm longa; filamenta gracilis, glabra nisi ad medium villosum; antherae subgloboosae, fusco-purpureae; bractee ovatae, 0.8 mm longae, glabrae, margine ciliatae; glandulae ventrales purpureo-flavae, oblongae, plerumque 0.2 mm longae. Amenta feminea densiflora, cylindrica, 3-4 cm longa, 6 mm crassa, rhachi villosa; pedunculi 1-1.5 cm longi, cinereo-villosi, foliis normalibus 2-3 suffulti; ovaria sessilia longo-conico-ovoidea, 2 mm longa, fusca, glabra, stylis gracilibus 2-lobatis, stigmatibus subcapitato; bractee suborbiculares, 0.4 mm longae, glabrae, margine sparse ciliatae; glandulae ventrales flavae oblongae, quam bractee breviores. Capsulae sessiles, 5 mm longae.

SZCHWAN: Mount Omei: Chin-ting, alt. 3135 m, H. C. Chow 7670 June 27, 1938 (pistillate flower, type); en route from Chin-ting to Chien-fu-ting, alt. 3150, common in thickets, C. L. Sun 445, June 10, 1939, Chien-fu-ting, alt. 3,150 m, T. C. Lee 2846, July 18, 1940 (typical of fruit), W. P. Fang 19002, June 18, 1942 (typical of staminate flower).

SIKANG: Tien-chun-hsien (formerly known as Mupin), K. L. Chu 2317, April 12, 1937.

This new species is near *Salix luctuosa* Léveillé, from which it differs in the bracts of both staminate and pistillate flowers, which are glabrous on both surfaces, although they are ciliate on the margin, and in the ventral glands which are much shorter than the bracts.

This new species is named in honor of Prof. Hsin-hsuan Chung, of the National Wuhan University, under whose direction H. C. Chow made several expeditions on Mount Omei. The pistillate flower is here described from a duplicate set of their collections kindly sent by Professor Chung.

4. *Salix chuniana* Fang, sp. nov.

Frutex 3-5 m altus, cortice nigro-fusco. Ramuli graciles, teretes; hornotini virides vel purpureo-virides, pubescentes; annotini flavescendo-fusci vel nigro-fusci, glabri. Gemmae conicae, 7 mm longae, fuscae, sparse puberulae. Folia alterna, chartacea, lanceolata, basi late cuneata vel subrotundata, margine leviter appresso-serrulata, supra atroviridia, juvenilia sparse pubescentia, maturitate glabrescentia,

costa media pubescenti excepta; nervi laterales plerumque obsoleti; folia subtus cinerescenti-viridia, leviter glauca, flavescenti-vel albo-sericeo-tomentosa; costa media prominens; nervi laterales utrinsecus 11-13, conspicui, incurvati; petioli graciles, 5-8 mm longi, supra canaliculati, subtus rotundati, tomentosi vel pubescentes. Flores serotini; amenta masculina ignota; amenta feminea laxiflora cylindrica, 4.5-5 cm longa, 4 mm lata, basi efoliosa; rhachis pubescens; pedunculi 5-7 mm longi albo-vel flavescenti-pubescentes; bractae oblongo-ovatae 0.5-0.8 mm longae, utrinsecus albo-vel flavescenti-sericeo-tomentosae; ovaria subsessilia, conico-ovoidea, 2 mm longa, sparse glandulosa ad basin et plerumque sparse villosa, stigmatate 3-vel 4-lobato, glandula ventrali flava, lineari, 1 mm longa, plerumque quam bractae longiore ovarium medium aequante. Fructus subsessilis; capsula 5 mm longa sparse villosa.

SZECHWAN: Mount Omei: Tsuan-tien-po, alt. 2000 m, in thickets, *C. L. Sun* 284 (type); Opien-hsien, Wa-shan, in forests, *C. L. Sun*

1073; Mount Omei, *W. C. Cheng* 10314, *C. W. Yao* 2315, 2345, 3866.

All were pistillate specimens collected in May except *Sun* 1073 in fruit collected in August.

Although the staminate flower has not been seen, this is a very distinct new species in the section *Chingianae* Hao. It is near *Salix rehderiana* Schneider in general appearance but differs in the habit of flowering after the leaves and in the pedunculate long and narrow pistillate catkins, which are leafless at the base. The flowers of *Salix rehderiana* are precocious and the sessile catkin is just 2.5 cm in length and 8 mm in width, and provided with two or three normal lanceolate leaves at the base of the inflorescence.

This new species is named in honor of my former teacher, Prof. Woon-Young Chu¹, the founder of the Botanical Institute of the National Sun Yatsen University at Canton, and the leading systematic botanist in China, for his unceasing devotion to floristic investigation and his encouragement to young botanists.

ENTOMOLOGY.—*Two new Ithomiinae in the Schaus collection (Lepidoptera: Nymphalidae)*.¹ RICHARD M. FOX, Pittsburgh, Pa. (Communicated by E. A. CHAPIN.)

The two butterflies described here are from the collection of the late Dr. William Schaus, which is now part of the United States National Museum collection of Lepidoptera. A few years ago the writer was invited by Dr. Schaus to study the ithomines he had accumulated, and through the courtesy of the National Museum and of the Academy of Natural Sciences of Philadelphia was enabled to do so. Some of the species and subspecies discovered among this material already have been published upon.²

Pteronymia schausi, n. sp.

This series, labeled "Colombia," approximates *P. tucuna* (Bates),³ a number of specimens of which I have seen from northern Peru.

There are many points of difference, however: The opaque costal spot of the forewing is less brilliantly yellow, is only half as long as in *tucuna*, and is cut off by the brown R_s (this is yellow in *tucuna*). The end of the cell, is yellow-transparent, the base yellow-orange-transparent and R and the cubitus are very narrowly red-tawny. The spots in the transparent areas of the rest of the wing are smaller, more translucent than in *tucuna*; these are located as follows: A yellow-transparent spot beyond the narrow, pointed brown discocellular band, crossing the base of M_1 , cut off at M_2 ; a tiny yellow-white-transparent spot halfway to the margin in M_2-M_3 ; a series of submarginal whitish-transparent spots R_s to Cu_2 , the last of these elongated. The anal border fills the space posterior of cubitus- Cu_2 .

The hind wing has an even border, brown-black, 1 to 2 mm wide, the cell and part of the disc toward the anal margin suffused with yellow-orange, the veins here yellow-brown. Between this suffused area and the opaque

¹ Received March 7, 1948.

² FOX, R. M. *New Ithomiinae*, Sci. Publ. Reading Public Mus. 2: 34 pp., 2 pls. 1941.

³ BATES, H. W. Trans. Linn. Soc. London 23: 544. 1862. (São Paulo, Amazons.)